CLAIMS

What is claimed is:

1. A magnetron, comprising:

a filament which produces thermions in the magnetron;

a pair of shields attached to ends of the filament which prevent the thermions from moving toward the ends of the filament;

a pair of leads attached to the shields at first ends of the leads, respectively;

a pair of connection plates attached to second ends of the leads, respectively; and

a pair of terminal rods attached to the pair of connection plates, respectively, to supply power to the pair of leads through the connection plates wherein the pair of terminal rods comprises:

an attachment portion which is attached to each connection plate respectively, and slender protrusions which have sectional areas smaller than sectional areas of the attachment portions of the terminal rods so that the pair of terminal rods are attached to the pair of connection plates with the slender protrusions passing through the connection plates.

2. The magnetron of claim 1, wherein:

the slender protrusions and the attachment portions of the pair of terminal rods are circular shaped; and

the connection plates are provided with terminal mounting holes having diameters corresponding to diameters of the slender protrusions to allow the slender protrusions to pass therethrough so that the attachment portions of the pair of terminal rods are attached to bottom surfaces of the connection plates and outer surfaces of the slender protrusions of the pair of terminal rods are attached to walls of the terminal mounting holes.

3. The magnetron of claim 2, wherein the pair of shields comprising:

a first shield mounted at a first end of the filament, and

a second shield mounted at a second end of the filament; and

the pair of leads comprising:

a first lead attached to the first shield and extended through the second shield, and

a second lead attached to the second shield; and

the pair of connection plates comprising:

a first connection plate attached to the first lead on a first side of the first connection plate and attached to a first terminal rod on a second side of the first connection plate, and

a second connection plate attached to the second lead on a first side of the second connection plate and attached to a second terminal rod on a second side of the second connection plate.

4. The magnetron of claim 3, wherein the first and second connection plates are arcuately shaped and provided with terminal mounting holes on first sides of the first and second connection plates, respectively, and lead mounting holes on second sides of the connection plates to allow the first and second leads to be attached thereto,respectively.

5. The magnetron of claim 1, wherein the pair of terminal rods are attached to the pair of connection plates by performing a brazing method.

6. A magnetron, comprising:

an anode having a plurality of vanes and an anode cylinder, wherein the plurality of vanes are radially arranged at regular intervals;

an antenna connected to one of the plurality of vanes;

strip rings arranged to alternately connect the plurality of vanes to each other at a top and bottom of the plurality of vanes;

a cathode having a coil-shaped filament to emit thermions at a high temperature and positioned at a center of the anode cylinder;

a first shield and a second shield attached to ends of the coil-shaped filament;

a first lead attached to a center of the first shield to pass through a center of the second shield and a central portion of the filament; and

a second lead attached to a bottom of the second shield, wherein the first and second leads are connected with external power terminals which allows a closed circuit to be formed in the magnetron;

a pair of terminal rods having slender protrusions and connected to the external power terminals at first ends of the terminal rods, respectively and positioned to pass through an isolation block to allow the first and second leads to be connected to each of the terminal rods, respectively; and

a pair of connection plates attached to second ends of the first and second leads, respectively.

7. The magnetron of claim 6, further comprising attachment portions on each of the terminal rods, wherein the attachment portions are attached to bottom surfaces of the pair of connection plates, respectively and the slender protrusions of the terminal rods are attached to terminal mounting holes provided on each of the connection plates, respectively, so that the pair of terminal rods are securely attached to the pair connection plates.

8. The magnetron of claim 6, further comprising a first and a second permanent magnet provided at a top and bottom of the anode, respectively, with opposite magnetic poles of the first and second permanent magnets facing each other so as to form a magnetic field across the magnetron.

9. The magnetron of claim 8, wherein a first pole piece and a second pole piece are provided to guide magnetic flux generated by the first and second permanent magnets toward the filament.

10. The magnetron of claim 9, further comprising a first shield cup and a second shield cup provided on the first and second pole pieces to close openings of the first and second pole pieces and maintain vacuum inside the first and second poles pieces.

11. The magnetron of claim 10, wherein the second shield cup is open at a bottom thereof to be supplied with power from an outside of the magnetron.

12. The magnetron of claim 11, further comprising an isolation block having a pair of through holes to receive the terminal rods and positioned to close a lower opening of the second shield cup.

13. The magnetron of claim 12, wherein the pair terminal rods are connected to the external power terminals at first ends of each of the terminal rods, respectively and positioned to pass through the isolation block allowing the first and second leads to be connected to each of the terminal rods.

14. The magnetron of claim 12, wherein the isolation block is fabricated by shaping insulation material into a cylindrical form.

15. The magnetron of claim 12, wherein the isolation block is tightly attached to the second shield cup to close an opening of the second shield cup and prevent vibrations from leaking through the second shield cup.

16. The magnetron of claim 6, wherein the pair of connection plates are formed of metallic plates having an arcuate shape.

17. The magnetron of claim 6, wherein the pair of connection plates are provided with terminal mounting holes which have shapes and sectional areas corresponding to shapes and sectional areas of the slender protrusions of the pair of terminal rods, and

lead mounting holes on second sides of each of the connection plates to allow the first and second leads to be attached thereto.

18. The magnetron of claim 17, wherein the pair of terminal rods are inserted into the terminal mounting holes of each of the connection plates to attach the terminal rods to the connection plates.

19. The magnetron of claim 17, wherein ends of the attachment portions of the terminal rods are positioned underneath the terminal mounting holes and only the slender protrusions of the terminal rods are inserted into the terminal mounting holes, so that the lengths of portions of the terminal rods which are protruding form the second shield cup can be uniformly maintained.

20. The magnetron of claim 19, wherein the attachment portions of the pair of terminal rods are inserted into the terminal mounting holes of the pair of connection plates to attach the terminal rods to the connection plates.

21. The magnetron of claim 19, wherein the slender protrusions are formed to have diameters corresponding to diameters of the terminal mounting holes and pass through the terminal mounting holes, and

the attachment portions of the terminal rods are formed to have diameters larger than the diameters of the slender protrusions and are caught by the pair of connection plates underneath the terminal mounting holes to prevent the pair of terminal rods from being inserted into an interior of the second shield so that the lengths of the protruded portions of the terminal rods can be uniformly maintained.

22. The magnetron of claim 19, wherein when the slender protrusions are inserted into the terminal mounting holes, a molten alloy is applied to gaps between the pair of connection plates and the pair of terminal rods to attach the pair of terminal rods to the pair of connection plates.